

CLAIMS

What is claimed is:

1. A distributed ontology system comprising:
a central computer comprising a global ontology directory;
a plurality of ontology server computers, each comprising:
a repository of class and relation definitions;
and
a server for responding to queries relating to
class and relation definitions in said repository; and
a computer network connecting said central computer with said
plurality of ontology server computers.

2. The system of claim 1 wherein at least one relation definition
within an ontology server computer references classes from a different ontology
server computer.

3. The system of claim 1 wherein said repositories also contain
superclass and subclass relationships.

4. The system of claim 3 wherein at least one superclass and
subclass relationship resides on a different ontology server computer than the
ontology server computer containing the subclass and the ontology server
computer containing the superclass.

5. The system of claim 1 wherein at least one of said plurality of
server computers further comprise a publisher for publishing class and relation
definitions in said repository to said global ontology directory.

6. The system of claim 1 wherein said central computer further
comprises an agent for seeking out class and relation definitions included in said
repositories.

The system of claim 1 further comprising an authoring tool for
aid repositories.

4 a query tool for querying at least one of said plurality of
5 repositories.

1 18. The system of claim 1 wherein the class and relation definitions
2 in said repository include authorship data.

1 19. The system of claim 18 further comprising a web filter for
2 generating a filtered ontology based on constraints on authorship data.

1 20. The system of claim 1 further comprising a text file embedder for
2 embedding a text file having a description of a class within a repository.

1 21. The system of claim 1 further comprising an XML embedder for
2 embedding an XML Schema within a designated repository by identifying class
3 and relation definitions implicit in the XML Schema.

1 22. The system of claim 21 wherein said XML embedder identifies
2 class and relation definitions with aid of a user choosing which classes and
3 relations implicit in the XML Schema are to be included within the designated
4 repository.

1 23. The system of claim 1 further comprising an XML embedder for
2 embedding an XML Schema within a designated repository by converting the
3 XML Schema into class and relation definitions.

1 24. The system of claim 23 wherein said XML embedder converts
2 the XML Schema into class and relation definitions with aid of a user choosing
3 which classes and relations implicit in the XML Schema are to be included within
4 the designated repository.

1 25. The system of claim 1 further comprising a view generator for
2 generating a view of a class by, by associating with the class a subset of attributes
3 of the class.

1 26. The system of claim 25 wherein the subset of attributes of the
2 class includes composed functions.

1 27. The system of claim 25 wherein at least one attribute in the
2 subset of attributes is further associated with a view of the co-domain of the
3 attribute.

1 28. The system of claim 25 further comprising an XML generator for
2 generating a single XML Schema type element from the view.

1 29. The system of claim 25 further comprising an XML generator for
2 generating an XML Schema from the view.

1 30. The system of claim 29 wherein said XML generator generates
2 an XML Schema with aid of a user choosing which classes and relations are to be
3 included within the XML Schema.

1 31. The system of claim 30 further comprising a class and relation
2 navigation tool for guiding the user in choosing classes and relations.

1 32. The system of claim 25 further comprising a designator for
2 designating classes and relations that are required and for designating classes and
3 relations that are optional.

1 33. The system of claim 1 further comprising a graphical user
2 interface including icons for displaying instances of classes.

1 34. The system of claim 33 further wherein said graphical user
2 interface also includes icons for displaying sets of instances defined by a logical
3 term.

1 35. The system of claim 1 further comprising an ontology navigation
2 tool for viewing class and relation definitions.

1 36. An ontology system comprising:
2 a repository of class and relation definitions;

1 43. The system of claim 40 wherein said XML generator converts at
2 least a portion of a class and relation directed graph structure into a tree structure.

1 44. The system of claim 40 further comprising a designator for
2 designating classes and relations that are required and for designating classes and
3 relations that are optional.

1 45. The system of claim 40 wherein said XML generator comprises
2 an XML embedder for embedding a pre-existing XML Schema within the
3 generated XML Schema.

1 46. A distributed ontology method comprising:
2 managing a plurality of repositories of class and relation
3 definitions;
4 managing a global ontology directory; and
5 responding to queries relating to class and relation definitions in
6 at least one repository.

1 47. The method of claim 46 wherein at least one relation definition
2 within a repository references classes from a different repository.

1 48. The method of claim 47 wherein said repositories also contain
2 superclass and subclass relationships.

1 49. The method of claim 48 wherein at least one superclass and
2 subclass relationship resides in a different repository than the repository
3 containing the subclass and the repository containing the superclass.

1 50. The method of claim 47 further comprising publishing class and
2 relation definitions in at least one repository to the global ontology directory.

1 51. The method of claim 47 further comprising seeking out class and
2 relation definitions included in the repositories.

1 52. The method of claim 47 further comprising updating the
2 repositories.

1 53. The method of claim 52 further comprising browsing a plurality
2 of repositories.

1 54. The method of claim 52 wherein said updating comprises
2 validating that updates made to the repositories maintain backward compatibility,
3 so that expressions that are currently valid remain valid after said updating is
4 performed.

1 55. The method of claim 54 wherein said updating further comprises
2 adding new class definitions to the repositories.

1 56. The method of claim 54 wherein said updating further comprises
2 editing class definitions in the repositories.

1 57. The method of claim 54 wherein said updating tool further
2 comprises adding relation definitions to the repositories.

1 58. The method of claim 54 wherein said updating further comprises
2 editing relation definitions in the repositories, by expanding domains of relations.

1 59. The method of claim 47 further comprising searching for class or
2 relation definitions.

1 60. The method of claim 59 further comprising:
2 searching the global ontology directory; and
3 querying at least one of the plurality of repositories.

1 61. The method of claim 47 wherein the class and relation
2 definitions in the repositories include authorship data.

1 62. The method of claim 61 further comprising generating a filtered
2 ontology based on constraints on authorship data.

1 63. The method of claim 47 further comprising embedding a text file
2 having a description of a class within a repository.

1 64. The method of claim 47 further comprising embedding an XML
2 Schema within a designated repository by identifying class and relation
3 definitions implicit in the XML Schema.

1 65. The method of claim 64 wherein said identifying comprises user-
2 aided choosing which classes and relations implicit in the XML Schema are to be
3 included within the designated repository.

1 66. The method of claim 47 further comprising embedding an XML
2 Schema within a designated repository by converting the XML Schema into class
3 and relation definitions.

1 67. The method of claim 66 wherein said converting comprises user-
2 aided choosing which classes and relations implicit in the XML Schema are to be
3 included within the designated repository.

1 68. The method of claim 47 further comprising generating a view of
2 a class by, by associating with the class a subset of attributes of the class.

1 69. The system of claim 68 wherein the subset of attributes of the
2 class includes composed functions.

1 70. The system of claim 68 wherein at least one attribute in the
2 subset of attributes is further associated with a view of the co-domain of the
3 attribute.

1 71. The system of claim 68 further comprising generating a single
2 XML Schema type element from the view.

1 72. The system of claim 68 further comprising generating an XML
2 Schema from the view.

1 73. The method of claim 72 wherein said generating comprises user-
2 aided choosing which classes and relations are to be included within the XML
3 Schema.

1 74. The method of claim 73 further comprising navigating through
2 class and relation definitions to guide said user-aided choosing.

1 75. The method of claim 68 further comprising designating classes
2 and relations that are required, and designating classes and relations that are
3 optional.

1 76. The method of claim 47 further comprising displaying icons
2 representing instances of classes.

1 77. The method of claim 76 further comprising displaying icons
2 representing sets of instances defined by a logical term.

1 78. The method of claim 47 further comprising navigating through
2 class and relation definitions.

1 79. An ontology method comprising:
2 managing a repository of class and relation definitions;
3 responding to queries relating to class and relation definitions in
4 the repository; and
5 embedding an XML Schema within the repository by identifying
6 class and relation definitions implicit in the XML Schema.

1 80. The method of claim 79 wherein said identifying comprises user-
2 aided choosing which classes and relations implicit in the XML Schema are to be
3 included within the repository.

1 81. An ontology method comprising:
2 managing a repository of class and relation definitions;
3 responding to queries relating to class and relation definitions in
4 the repository; and
5 embedding an XML Schema within the repository by converting
6 the XML Schema into class and relation definitions.

1 82. The method of claim 81 wherein said converting comprises user-
2 aided choosing which classes and relations implicit in the XML Schema are to be
3 included within the repository.

1 83. An ontology method comprising:
2 managing a repository of class and relation definitions;
3 responding to queries relating to class and relation definitions in
4 the repository; and
5 generating an XML Schema from class and relation definitions.

1 84. The method of claim 83 wherein said generating comprises user-
2 aided choosing which classes and relations are to be included within the XML
3 Schema.

1 85. The method of claim 84 further comprising navigating through
2 class and relation definitions to guide said user-aided choosing.

1 86. The method of claim 83 wherein said generating comprises
2 converting at least a portion of a class and relation directed graph structure into a
3 tree structure.

1 87. The method of claim 83 further comprising designating classes
2 and relations that are required, and designating classes and relations that are
3 optional.

1 88. The method of claim 83 wherein said generating comprises
2 embedding a pre-existing XML Schema within the generated XML Schema.

1 89. An ontology system comprising:
2 a global ontology directory;
3 a plurality of repositories of class and relation definitions; and
4 a server for responding to queries relating to class and relation
5 definitions in said repositories.

1 90. The system of claim 89 wherein at least one relation definition
2 within a repository references classes from a different repository.

1 91. The system of claim 90 wherein said repositories also contain
2 superclass and subclass relationships.

1 92. The system of claim 91 wherein at least one superclass and
2 subclass relationship resides in a different repository than the repository
3 containing the subclass or the repository containing the superclass.

1 93. The system of claim 90 further comprising a publisher for
2 publishing class and relation definitions in at least one of said repositories to said
3 global ontology directory.

1 94. The system of claim 90 further comprising an agent for seeking
2 out class and relation definitions included in said repositories.

1 95. The system of claim 90 further comprising an authoring tool for
2 updating said repositories.

1 96. The system of claim 95 wherein said authoring tool has the
2 capability to browse a plurality of repositories.

1 97. The system of claim 96 wherein said authoring tool comprises a
2 validator for ensuring that updates made to said repositories maintain backward
3 compatibility, so that expressions that are currently valid remain valid after the
4 updates are made.

1 98. The system of claim 97 wherein said authoring tool further
2 comprises a class adder for adding new class definitions to said repositories.

1 99. The system of claim 97 wherein said authoring tool further
2 comprises a class editor for editing class definitions in said repositories.

1 100. The system of claim 97 wherein said authoring tool further
2 comprises a relation adder for adding relation definitions to said repositories.

1 101. The system of claim 97 wherein said authoring tool further
2 comprises a relation editor for editing relation definitions in said repositories, by
3 expanding domains of relations.

1 102. The system of claim 90 further comprising a search engine for
2 searching for class or relation definitions.

1 103. The system of claim 102 further comprising an ontology toolkit
2 comprising:
3 a search tool, for searching said global ontology directory; and
4 a query tool for querying at least one of said plurality of
5 repositories.

1 104. The system of claim 90 wherein the class and relation definitions
2 in said repository include authorship data.

1 105. The system of claim 104 further comprising a web filter for
2 generating a filtered ontology based on constraints on authorship data.

1 106. The system of claim 90 further comprising a text file embedder
2 for embedding a text file having a description of a class within a repository.

1 107. The system of claim 90 further comprising an XML embedder
2 for embedding an XML Schema within a designated repository by identifying
3 class and relation definitions implicit in the XML Schema.

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1 108. The system of claim 107 wherein said XML embedder identifies
2 class and relation definitions with aid of a user choosing which classes and
3 relations implicit in the XML Schema are to be included within the designated
4 repository.

1 109. The system of claim 90 further comprising an XML embedder
2 for embedding an XML Schema within a designated repository by converting the
3 XML Schema into class and relation definitions.

1 110. The system of claim 109 wherein said XML embedder converts
2 the XML Schema into class and relation definitions with aid of a user choosing
3 which classes and relations implicit in the XML Schema are to be included within
4 the designated repository.

1 111. The system of claim 90 further comprising a view generator for
2 generating a tree of attributes from class and relation definitions.

1 112. The system of claim 111 wherein said view generator is an XML
2 generator for generating an XML Schema from class and relation definitions.

1 113. The system of claim 112 wherein said XML generator generates
2 an XML Schema with aid of a user choosing which classes and relations are to be
3 included within the XML Schema.

1 114. The system of claim 113 further comprising a class and relation
2 navigation tool for guiding the user in choosing classes and relations.

1 115. The system of claim 111 further comprising a designator for
2 designating classes and relations that are required, and for designating classes and
3 relations that are optional.

1 116. The system of claim 90 further comprising a graphical user
2 interface including icons for displaying instances of classes.

1 117. The system of claim 116 further wherein said graphical user
2 interface also includes icons for displaying sets of instances defined by a logical
3 term.

1 118. The system of claim 90 further comprising an ontology
2 navigation tool for viewing class and relation definitions.

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